

Air Quality Technical Memorandum
State Road 869 / SW 10th Street Connector
Project Development and Environment (PD&E) Study

SW 10th Street from Florida's Turnpike / Sawgrass
Expressway to I-95 (SR 869/Sawgrass Expressway MP 21.077
to MP 21.835 and SW 10th Street MP 0.00 to 1.427)

ETDM No.: 14291 / FAP No.: TBD
Financial Project ID No. 439891-1-22-02
Broward County, Florida



Prepared for:
FDOT District Four
3400 W. Commercial Blvd.
Ft. Lauderdale, FL 33309

August 2019

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Federal Highway Administration and FDOT.



Date: August 13, 2019

To: Florida Department of Transportation, District Four

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Company: RS&H, Inc.

Subject: Air Quality Screening Test

SW 10th Street from Florida's Turnpike / Sawgrass Expressway to I-95 (SR 869 / Sawgrass Expressway MP 21.077 to MP 21.835 and SW 10th Street MP 0.00 to 1.427) Project Development & Environment (PD&E) Study

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1.0 Introduction

The Florida Department of Transportation (FDOT) is evaluating alternatives to improve SR 869 (SW 10th Street) from Sawgrass Expressway / Florida's Turnpike to west of I-95, a distance of approximately 3.0 miles. The project is located in Broward County, Florida and is contained within the municipality of Deerfield Beach. **Figure 1.1.1** shows the limits of the SW 10th Street Connector PD&E Study.

As part of this PD&E Study, the project has been reviewed for air quality impacts consistent with the guidance provided by Federal Highway Administration (FHWA) as described in Part 2, Chapter 19 of the FDOT PD&E Manual entitled Air Quality (dated January 14, 2019). The purpose of this Technical Memorandum is to document the findings of the air quality analysis.

1.1 Project Description

SW 10th Street currently consists of six lanes (three in each direction) from Florida's Turnpike to SR 845 (Powerline Road), four lanes (two in each direction) from Powerline Road to east of Military Trail, and five lanes (two westbound and three eastbound) from west of

Military Trail to I-95. This segment of SW 10th Street is functionally classified as a Divided Urban Principal Arterial and has posted speed limits of 45 miles per hour from Florida's Turnpike to Military Trail, and 40 miles per hour from Military Trail to I-95. The access management classification from Florida's Turnpike to Powerline Road is Class 1. East of Powerline Road, the access management classification is Class 3.

SW 10th Street is an east-west Principal Arterial that connects three limited access facilities: Florida's Turnpike, Sawgrass Expressway, and I-95. SW 10th Street is part of the state's Strategic Intermodal System (SIS) and the National Highway System (NHS). SW 10th Street from Florida's Turnpike to I-95 is a missing link in the existing and planned regional express lanes system network. This study is proposing to add additional lanes in the corridor for the purpose of closing this gap and providing a continuous link in the managed lanes network that will be separate from the local SW 10th Street facility. In addition, SW 10th Street is designated as an evacuation route.

The proposed improvements are intended to reduce the amount of traffic on local SW 10th Street by allowing vehicles to bypass the area by utilizing the managed lane facility. The ability to provide relief for local traffic is a component of the improved connectivity between the three limited access facilities by providing dual systems (Local Access and Limited Access) within the SW 10th Street right-of-way. Because SW 10th Street is impacted by three major limited access facilities, local traffic relief is necessary before future improvements to the three limited access facilities are implemented. Improvements are planned for the interchange at the Sawgrass Expressway / Florida's Turnpike to the west and I-95 at SW 10th Street interchange to the east. Public involvement will be essential in this PD&E Study due to the residential developments and local businesses along SW 10th Street, as well as in the surrounding areas, as this segment is a missing link in the south Florida managed lanes network.

2.0 Air Quality Analysis

The proposed project is located in Broward County, which is currently designated as being in attainment for the following criteria air pollutants: ozone, nitrogen dioxide, particulate matter (2.5 microns in size and 10 microns in size), sulfur dioxide, carbon monoxide, and lead.

The Recommended Build and No Build Alternatives were subjected to a carbon monoxide (CO) screening model that makes various conservative worst-case assumptions related to site conditions, meteorology, and traffic. The FDOT's screening model, CO Florida 2012, uses the United States Environmental Protection Agency (USEPA) software [Motor Vehicle Emission Simulator (MOVES) version 2010a and CAL3QHC] to produce estimates of one-hour and eight-hour CO concentrations at default air quality receptor locations. The one-hour and eight-hour estimates can be directly compared to the one- and eight-hour National Ambient Air Quality Standards for CO that are 35 parts per million (ppm) and 9 ppm, respectively.

The highest total traffic volumes for the No Build and Recommended Build Alternatives are associated with the SW 10th Street and Powerline Road Intersection. Both the No Build and Recommended Build Alternatives were evaluated for the design year 2040. The traffic data used in this evaluation is provided in Table 2.1, which was developed from several traffic reports including: SW 10th Street PD&E Project Traffic Forecast Memorandum (January 2019); SW 10th Street Connector – Toll-Free Project Traffic Forecast Technical Memorandum (July 2019); and SW 10th Street Connector PD&E Study Project Traffic Analysis Report (August 2019).

Estimates of CO were predicted for the default receptors that are located 10 feet to 150 feet from the edge of the roadway. The results of the screening test are summarized in Table 2.2. Only the maximum one-hour and eight-hour CO concentrations are presented in this table. The results of the screening model are included as an attachment to this memorandum. Based on the results from the screening model, the highest project-related CO one- and eight-hour levels are not predicted to meet or exceed the one- or eight-hour National Ambient Air Quality Standards for this pollutant with either the No Build or Recommended Build Alternatives. As such, the project “passes” the screening model.

The project is located in an area which is designated in attainment for all of the National Ambient Air Quality Standards under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project.

Construction activities will cause short-term air quality impacts in the form of dust from earthwork and unpaved roads. These impacts will be minimized by adherence to all applicable State and local regulations and to the FDOT Standard Specifications for Road and Bridge Construction.

**Table 2.1: Traffic Data for Air Quality Analysis
SR 869 / SW 10th Street Connector PD&E Study**

Roadway Type	Roadway Name	Roadway Segment	2040	
			Vehicles Per Hour	Cruise Speed (mph)
No Build Alternative				
North/South Principal Arterial	Powerline Road	Northbound Approach Traffic	1,795	45
		Southbound Approach Traffic	1,780	
East/West Principal Arterial	SW 10 th Street	Eastbound Approach Traffic	5,795	45
		Westbound Approach Traffic	2,680	
Recommended Build Alternative				
North/South Principal Arterial	Powerline Road	Northbound Approach Traffic	1,860	45
		Southbound Approach Traffic	1,920	
East/West Principal Arterial	SW 10 th Street	Eastbound Approach Traffic	2,995	45
		Westbound Approach Traffic	2,000	

Table 2.2: Predicted CO Concentrations

Alternative	Year	Receptor Site Number(s)	Maximum One-Hour CO Concentration (ppm)	Maximum Eight-Hour CO Concentration (ppm)
SW 10 th Street and Powerline Road				
No Build	Design Year (2040)	3, 13, 18	10.7	6.4
Build (Recommended)	Design Year (2040)	3, 8, 13, 18	8.1	4.9

Note: * The predicted worst-case one-hour and eight-hour CO concentrations for the No Build and Recommended Build Alternatives are below the NAAQS of 35 ppm for one-hour concentrations and 9 ppm for eight-hour concentrations.

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ATTACHMENT
Air Quality Screening Results
CO Florida 2012

Draft

CO Florida 2012 - Results
 Tuesday, August 13, 2019

Project Description

Project Title SW 10th Street AQTM
 Facility Name SW 10th Street & Powerline Road
 User's Name RVH
 Run Name 2040 No Build AM
 FDOT District 4
 Year 2040
 Intersection Type 6 X 6
 Speed Arterial 45 mph
 Approach Traffic Arterial 5795 vph

Environmental Data

Temperature 53.9 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
 8 Hr. Background Concentration 3.0 ppm

Results

(ppm, including background CO)		
Receptor	Max 1-Hr	Max 8-Hr
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1	10.0	6.0
2	10.2	6.1
3	10.7	6.4
4	9.7	5.8
5	8.7	5.2
6	10.1	6.1
7	10.3	6.2
8	10.8	6.5
9	9.8	5.9
10	8.7	5.2
11	10.0	6.0
12	10.2	6.1
13	10.7	6.4
14	9.6	5.8
15	8.7	5.2
16	10.1	6.1
17	10.2	6.1
18	10.7	6.4
19	9.7	5.8
20	8.7	5.2

 *****PROJECT PASSES*****
 NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED

CO Florida 2012 - Results
 Tuesday, August 13, 2019

Project Description

Project Title SW 10th Street AQTM
 Facility Name SW 10th Street & Powerline Road
 User's Name RVH
 Run Name 2040 Build AM
 FDOT District 4
 Year 2040
 Intersection Type 6 X 6
 Speed Arterial 45 mph
 Approach Traffic Arterial 2995 vph

Environmental Data

Temperature 53.9 °F
 Reid Vapor Pressure 13.3 psi
 Land Use Urban
 Stability Class D
 Surface Roughness 175 cm
 1 Hr. Background Concentration 5.0 ppm
 8 Hr. Background Concentration 3.0 ppm

Results

(ppm, including background CO)		
Receptor	Max 1-Hr	Max 8-Hr
-----	-----	-----
1	7.7	4.6
2	7.8	4.7
3	8.1	4.9
4	7.6	4.6
5	7.0	4.2
6	7.7	4.6
7	7.7	4.6
8	8.1	4.9
9	7.6	4.6
10	7.1	4.3
11	7.7	4.6
12	7.7	4.6
13	8.1	4.9
14	7.6	4.6
15	7.0	4.2
16	7.7	4.6
17	7.7	4.6
18	8.1	4.9
19	7.5	4.5
20	7.0	4.2

 *****PROJECT PASSES*****
 NO EXCEEDANCES OF NAAQ STANDARDS ARE PREDICTED
